be measured, but fails to teach or suggest an impedance monitor coupled to the HF electrode to measure the impedance at the HF electrode and the LF electrode to measure the impedance at the LF electrode. For instance, using the sensor (202) as disclosed in Patrick et al. in a dual frequency system does **not** provide measurement of the impedance at the HF electrode and the impedance at the LF electrode as recited in claim 11.

Moreover, Patrick et al. is devoid of any suggestion for a dual frequency plasma system employing an HF electrode and an LF electrode. Although Salimian et al. discloses a dual frequency plasma reactor having an HF electrode and an LF electrode, there is no clear and particular suggestion to combine Salimian et al. and Patrick et al. Indeed, Applicants respectfully assert that the rejection based on the combination of the five references benefits from the exercise of hindsight. Federal Circuit "case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) (citations omitted). To guard against the tempting trap of hindsight, the evidence of a suggestion, teaching, or motivation to combine "must be clear and particular." *Dembiczak*, 50 U.S.P.Q.2d at 1617 (citation omitted). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not `evidence.'" *Id.* (citations omitted). "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Id.* (citing *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985)). In this case, the Examiner has pieced together the separate teachings of the five references to defeat patentability with the benefit of hindsight.

Even if combined, the references still do not suggest an impedance monitor electrically coupled to the HF electrode to measure the impedance at the HF electrode and the LF electrode to measure the impedance at the LF electrode for the reasons discussed above. Accordingly, Applicants respectfully contend that independent claim 11 is patentable.

Claims 3, 4, 6, 12-14, 19, 22, and 23 depend from claim 11, and are patentable as being directed to additional features of the invention as well as by being dependent from allowable claim 11. For instance, claim 4 recites a variable capacitor electrically coupled to

the chamber and controllably coupled to the processor to vary the impedance of the plasma in response to an output of the impedance monitor. Claim 12 recites a variable capacitor electrically coupled to the LF electrode to vary the impedance of the plasma in response to the output of the impedance monitor. Claim 13 recites an impedance tuner coupled in series to the pedestal, and claim 14 recites that the impedance tuner is coupled between the pedestal and a low frequency RF generator. Claim 19 recites that the impedance tuner includes a variable capacitor. Nothing in the cited art teaches or suggests these features.

New claim 22 recites that the impedance monitor comprises a first impedance probe connected to the HF electrode and a second impedance probe connected to the LF electrode. The specification at page 26, lines 2-4 discloses this feature, which is **completely absent** from the references.

New claim 23 recites an RF matching network electrically coupled to the chamber, where the variable capacitor is separate from the matching network. The variable capacitors (106), (108) in Patrick et al. are part of the matching network (120) for automatically adjusting to produce a match condition between the RF generator (102) and the plasma chamber (104) (col. 7, lines 18-20). The capacitors (106), (108) are used for matching purposes in a matching network, and are not used to vary the impedance of the plasma in response to an output of the impedance monitor as recited in the claims.

Claim 5

Claim 5 depends from claim 3 which depends from claim 11. Applicants believe claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Salimian et al. in view of Patrick et al., Kinoshita et al., Maher et al., and Ohmi, and further in view of Boys et al. (USP 4,695,700).

Claim 5 recites a pressure control system configured to control a pressure level within the chamber to vary the pressure within the chamber in response to the measured impedance level of the plasma. As discussed in the specification at page 29, lines 4-7, pressure variation can be used to adjust for an impedance drift. Nothing in the cited art suggests this feature.

Boys et al. merely describes a vacuum gauge (47) for monitoring the pressure in the processing area (13) (col. 8, lines 28-29), and discloses carrying out a plasma process by

setting a desired operating pressure (col. 14, lines 24-25). Boys et al. does not suggest adjusting the pressure in response to measured impedance level of the plasma. The Examiner alleges that the pressure control system as disclosed in Boys et al. is an obvious extension to the control system and impedance data collection and processing taught in Patrick et al. The Examiner states that the motivation for the combination is to control the plasma as provided, for example, in Patrick et al. at column 3, lines 64-68 and column 4, line 18.

Applicants note, however, that Patrick et al. is completely devoid of any suggestion to vary the pressure in response to the measured impedance level of the plasma, and does not even discuss pressure control. In the cited passages, Patrick et al. makes the general statement that the voltage, current, phase and impedance of the plasma chamber electrode may also be measured and the measurement information used by the control system. That statement does not constitute "clear and particular" to add a pressure control system to vary the pressure within the chamber in response to the measured impedance level of the plasma. Accordingly, Applicants respectfully contend that claim 5 is patentable.

Claim 21

Claim 21 depends from claim 11. Applicants believe claim 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Salimian et al. in view of Patrick et al., Kinoshita et al., Maher et al., and Ohmi, and further in view of Grewal et al. (USP 5,597,438).

Applicants contend that claim 21 is patentable at least for the same reasons that claim 11 is patentable as discussed above. Grewal et al. merely discloses the use of a plurality of RF generators, and does not cure the defects of the other five references. Moreover, Applicants believe the rejection based on the combination of the six references benefits from the exercise of hindsight. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 21.

Claims 17 and 18

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Salimian et al. in view of Patrick et al. and Kinoshita et al., Maher et al., and Ohmi.

Applicants respectfully assert that claims 17 and 18 are patentable because the references do not disclose or suggest means for monitoring the impedance level of the dual

frequency plasma as recited in claim 17, and the variable capacitor electrically coupled to the processing chamber to vary the impedance of the dual frequency plasma as recited in claim 18.

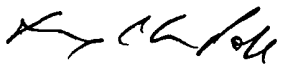
As discussed above, Patrick et al. merely discloses a power sensor (202) for measuring the RF power delivered to the plasma chamber (104) (col. 7, lines 14-15), but fails to teach or suggest means for monitoring an impedance level of a dual frequency plasma. The disclosure of the power sensor (202) does not suggest the recited means. Moreover, Patrick et al. is devoid of any suggestion to provide means for forming a dual frequency plasma. As discussed above, although Salimian et al. discloses a dual frequency plasma reactor, the mere fact that Patrick et al. can be combined with Salimian et al. does not constitute motivation to combine them without a clear and particular motivation to do so. Therefore, Applicants respectfully submit that claims 17 and 18 are patentable over the cited references.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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